

### ***Thank you for choosing ShoreLand'r®!***

Here are the operating instructions for your new trailer. Please read this document carefully before using your trailer and keep it in a safe place for future reference.

If you have any questions about your trailer contact your local **ShoreLand'r®** dealer or contact our Customer Service Department at 800-859-3028 or e-mail: [shorelandr@midwestindustries.com](mailto:shorelandr@midwestindustries.com), so we can assist you in contacting a dealer.

*You should have recieved a packet of warranty documents with your trailer. Be sure to fill out and mail your Warranty Registration Card to activate your trailer's warranty. If you did not recieve this information ask your dealer for a copy or visit [www.shorelandr.com](http://www.shorelandr.com) and register online.*

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***Please fill in the following information for your records***

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**Model Year:** \_\_\_\_\_

**Model:** \_\_\_\_\_

**Vehicle Identification Number:** \_\_\_\_\_

**Carrying Capacity:** \_\_\_\_\_

**Date Purchased:** \_\_\_\_\_

**Purchased From:** \_\_\_\_\_

*Models and specifications are subject to change. Some models are shown with optional equipment. Because of the continual improvements to our trailers, **ShoreLand'r®** reserves the right to add or discontinue models at any time or to change design and specifications without notice and incurring obligations.*

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## You and Your **ShoreLand'r®**

We at **ShoreLand'r®** would like to thank you for purchasing one of our trailers!

Our goal is your complete satisfaction, that is why we recommend leading this manual in its entirety. A better understanding of your trailer's features, regulations and adjustments will make your towing experience more pleasurable.

It is important that you give your new trailer proper care and maintenance to ensure that it continues to provide the dependable performance year after year.

**Happy trailering!**

**IMPORTANT:** Read this manual carefully with special attention directed toward all **WARNING**, **CAUTION** and **IMPORTANT** information.

Because of the continual improvements being made in our line, ShoreLand'r® reserves the right to add or discontinue models at any time or to change design and specifications without notice and incurring obligations.

All specifications contained herein were in effect at the time this manual was printed.

Should a problem arise, please contact the dealer from whom the original purchase was made. You may also call our distributor for your area or call our **Customer Service Department** by phone at 800-859-3028 or e-mail [shorelandr@midwestindustries.com](mailto:shorelandr@midwestindustries.com).

## NOTICE

This trailer is equipped to meet applicable U.S. Federal safety standards. Check local and state requirements regarding brakes and any additional equipment that may be required. Any modifications or additions including load equalizing hitches, without written factory consent; usage in an abnormal manner including overloading voids all manufacturers warranties and liability.

## Referencing the Utility Trailer in this Manual

All references to the trailer or component parts to either left or right are made with the assumption that you are standing behind the trailer facing forward. Your left-hand or right-hand is the equivalent on the trailer.

## Matching Your **Shoreland'r®** to the Load You Intend to Haul

The key to carefree trailering is purchasing a trailer that is designed with a carrying capacity large enough to carry the loads you intend to haul on it. This includes all excess gear and tie down materials used to contain the load on the trailer when towing.

The trailer should also be long enough to properly support the materials you are hauling. It must also be of sufficient width to offer stability while towing.

## Load-carrying Capacity

Located on the front left-hand side of the frame, (either the inside or the outside) is the VIN (Vehicle Identification Number) tag. It will show the GVWR (Gross Vehicle Weight Rating) which is the maximum load that can be applied to the tires on the trailer. Note that the VIN tag may have as many as three different GVWR ratings listed because some trailers frames have more than one tire option available. The GVWR and the carrying capacity of the trailer may vary based on the tire size installed on the trailer.

Also listed on the VIN tag is the carrying capacity of the trailer. This is the maximum carrying capacity of the trailer with its respective tire option. It may not necessarily equal the total GVWR of the trailer less the empty weight of the trailer because there may be another controlling factor such as frame strength that reduces the carrying capacity to what is listed on the VIN tag.

The tire label will list the size tire that was installed on the trailer as original equipment when it was sold to you, the consumer. It also lists the maximum carrying capacity of the trailer.

### IMPORTANT

The total weight of the load must never exceed the weight of cargo listed on the tire label and/or the maximum load carrying capacity listed on the VIN tag on your trailer. The GVWR (Gross Vehicle

Weight Rating) listed is the maximum total weight of the trailer with accessories and all cargo allowable to be carried on the tires that are installed on the trailer.

Some model trailers have a different limiting factor other than the tires, example frame, or brake law limitations. The maximum load carrying capacity that is listed should never be exceeded.

**CAUTION: The maximum load applied to the trailer must never exceed the carrying capacity of the trailer as stated on the VIN label and/or the tire placard. Doing so may cause failure of one or more component parts of the trailer causing potential damage to the trailer and/or a potential accident. All concentrated loads must be spread over as large an area as possible to eliminate potential damage to the decking.**

Shown below is an example of the VIN and tire label that is placed on your trailer showing the items just discussed above. Once you have familiarized yourself with the information supplied on the example tire label and VIN tag, check the tire size and capacity of your trailer as shown on the VIN tag on your trailer.

**TIRE & LOADING INFORMATION**

The weight of cargo should never exceed 953 kg. or 2100 lb.

TIRE SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT 20.5X8.0X10-E	480 KPA, 70 PSI	
REAR 20.5X8.0X10-E	480 KPA, 70 PSI	
SPARE 20.5X8.0X10-E	480 KPA, 70 PSI	

**Midwest INDUSTRIES, INC.** IDA GROVE, IA 51445

MFD. BY / FABRIQUÉ PAR: **Midwest**

DATE: 08/2005

SIZE / DIMENSION

GVWR / PNBV	KG	(LB)	KG	(LB)	TIRE / PNEU	RM / JANTE	COLD INFL PRESS / DE GONF À FROID	MAX. LOAD CARRYING CAPACITY
1343	(2960)	1343	(2960)	20.5X8.0X10-E	10X6.0 J	480	(70)	953 (2100)
1343	(2960)	1343	(2960)	ST 185/80R13-C	13X4.5 J	343	(50)	953 (2100)

THIS VEHICLE CONFORMS TO ALL APPLICABLE US FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN / NLV: **1MDZZ4W236Z000000** TRAILER 3ATV BLACK 2006

THIS VEHICLE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED UNDER THE CANADIAN MOTOR VEHICLE SAFETY REGULATIONS IN EFFECT ON THE DATE OF MANUFACTURE.

CE VÉHICULE EST CONFORME À TOUTES LES NORMES QUI LUI SONT APPLICABLES EN VERTU DU RÈGLEMENT SUR LA SÉCURITÉ DES VÉHICULES AUTOMOBILES DU CANADA EN VIGUEUR À LA DATE DE SA FABRICATION.

## Proper Weight Distribution & Tongue Weight

Ensuring that your trailer has the proper **GVWR** is very important. Once that has been established and you have the load on the trailer it is equally important that you have proper weight distribution.

### Tongue Weight

The tongue weight on your trailer should range from 5-10% of the total weight of the trailer and all the cargo that it is carrying. This is the amount of weight that is then transferred to the tow vehicle through the ball hitch. Smaller trailers should have a tongue weight that ranges closer to the 10% while larger trailers will tend to be closer to the 5% range. This should be checked when the tongue is parallel to the ground. A bathroom scale can be used to help determine the tongue weight as long as the above conditions are adhered to.

**Example:** The total weight of the trailer with load is 2,000 pounds. The tongue weight should not be less than 100 pounds (5%) nor more than 200 pounds (10%). A reasonable tongue weight for a trailer this size is 125-150 pounds.

Too light of tongue weight can cause the trailer to "fishtail" (sway

from side to side) as you travel down the highway. This creates excessive strains on the tow vehicle, hitch and also the trailer itself. It can very easily lead to an accident.

To adjust for too light tongue weight the load must be shifted forward with respect to the axle. This will increase the weight that is transferred to the tongue. Adjustments should be made until the tongue weight falls within the 5% and 10% recommended range. Likewise, if you have too much tongue weight adjust the weight backwards with respect to the axle until the tongue weight falls in the recommended range.

Tow vehicles vary on how much tongue weight they can support for proper towing.

**! WARNING**

Fishtailing caused from improper tongue weight on the tow vehicle hitch ball can cause loss of control of the tow vehicle and result in serious injury or property damage.

**IMPORTANT:** Before towing this trailer be sure to read the instructions and warnings supplied in this manual. Also read the information supplied with your tow vehicle so you know and understand it's limitations.

#### NEVER TOW THIS TRAILER BEFORE CHECKING:

- Coupler and latch assembly show no signs of wear or damage.
- Coupler hitch and hitch ball are of the same size.
- Coupler and safety chains are safely secured to the hitch.
- Check all fasteners for proper tightness.
- Load is securely tied down to the trailer.
- Wheel lug nuts are properly tightened to the right torque.
- Wheel bearings are properly adjusted and maintained.
- Load is within the maximum load carrying capacity of trailer.
- Tires are properly inflated and are road worthy.
- All trailer lighting is working properly.
- Trailer brakes are properly adjusted and in working condition.

**IMPORTANT:** The load must be distributed equally on the bed of the trailer if possible. Heavy, concentrated loads may cause damage or possible failure of the trailer decking. If concentrated loads are placed on the trailer deck, spread the load over a larger area by placing a larger size steel plate or multiple layers of plywood on the trailer decking before placing on the concentrated load.

**WARNING:** Loads placed on the trailer must be securely tied to the trailer frame or decking. Always use appropriate tie downs designed to restrict loads from moving when properly attached. Failure to do so will allow shifting of the load causing potential trailer failure and/or loss of the load and personal injury.

This trailer is equipped to meet all applicable federal safety standards in effect the day of manufacture. Check local and state requirements regarding brakes and any additional equipment that may be required.

Check regulations on maximum trailer width in the states you plan to tow your trailer.

The addition of optional equipment to your trailer may increase the total weight of your trailer package to where it now exceeds the maximum load carrying capacity of the trailer.

## TOW VEHICLES

**WARNING:** Serious injury or property damage can result if the total weight of your loaded trailer exceeds the capacity of the hitch and/or your tow vehicle.

It is very important that you know and understand the towing capabilities of your tow vehicle. This is especially true with the braking abilities of the tow vehicle. You should check with your authorized dealer to see what the capabilities are for the total towing load and the maximum allowable tongue weight for the vehicle you plan on using for towing. Several options are available for these cars or pickups which will help your towing ability. They include transmission coolers, engine oil coolers, proper rear end ratios, air shocks, over-size tires, and also heavy duty radiators. Many can be purchased with the optional trailer package that includes some or all of the above mentioned items.

It is also important that the lighting system in the tow vehicle has sufficient capacity to support the additional load the trailer lighting will add to the system. A heavy duty flasher may be required to make your turn signals function properly.

## TRAILER BALLS & COUPLERS

**WARNING:** Failure to properly engage the hitch ball in the coupler ball socket and securely lock the coupler latch mechanism can cause the trailer to become detached from the tow vehicle while traveling, which may cause serious injury or property damage.

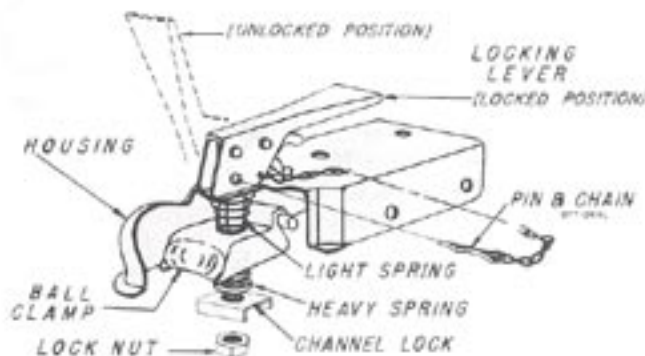
Trailer couplers shall be permanently marked with (A) Coupler manufacturer name, initials, or trademark, (B) Part, style or model number, (C) SAE coupler designation and gross trailer weight, (D) Ball diameter for which rating (GVWR) shall not exceed the gross trailer weight marked on the trailer coupler.

The hitch balls have the rated load they are capable of towing stamped into the top of the ball.

Make sure the ball that you use to tow your trailer has the same capacity rating as the coupler.

Do not use a different size ball than the size the coupler is designed to use.

Class	Coupler	Ball Diameter
II	3,500# GVWR	2"
III	5,000# GVWR	2"



To adjust your Class II and Class III coupler to your trailer ball, remove the coupler from the ball. Reach under the coupler and raise the channel lock up so the nut can be turned. Turn the adjusting nut clockwise to tighten the ball clamp grip on the ball, counterclockwise to loosen ball clamp grip on the ball. Once the nut has been adjusted make sure the channel lock has positioned back down around the flat surfaces of the nut so it is locked from turning. Replace the hitch back on the ball and latch. Repeat this process until the ball clamp latches securely around the ball.

## HITCH COUPLER TROUBLESHOOTING

If the coupler becomes damaged it must be repaired or replaced before towing. When the coupler is placed on the ball, the latch should close firmly. Keep the latch mechanism lightly oiled and clean. Items to check for are as follows:

1. Latch does not grasp ball securely:
  - A. Check the ball size. Make sure the ball and coupler are the same size.
  - B. Unlatch the mechanism and reach under the ball clamp. Raise the retainer clip that keeps the nut from turning,



then turn the adjustment nut clockwise to tighten the grip on the ball. Make sure the nut returns to its proper position in the retainer clip, then latch the hitch on the ball. If it is still loose repeat the process until the grasp on the ball is right.

2. Latch does not snap into full latch position:
  - A. Check adjustment. Latch mechanism may be too tight. Loosen by reversing procedure in step #1 and turning the nut counterclockwise.
  - B. Check to see that the coupler housing has not been damaged, keeping the ball hitch from fitting completely into the housing as designed.
3. Keep the tongue blocked up when not in use so the coupler and mechanism are not in the ground being exposed to dirt and moisture.
4. Apply a small amount of an automotive grease to the ball before hitching coupler to prevent wear of the two parts during towing.
5. Make sure the latch safety pin is in position before towing.

## COUPLER & BALL ENGAGEMENT

If the coupler and towing ball resist attempts to make engagement, do not force latch assembly. Instead, check the ball diameter to verify that it conforms to **Society of Automotive Engineers (SAE)** specifications. Standard two-inch diameter ball should be within the limits of 2.000-inches to 1.970-inches. Balls larger than 2.000-inches will not readily fit the coupler. A two-piece coupler ball is not recommended.

If the coupler becomes damaged it must be repaired or replaced before towing. When the coupler is placed on the ball, the latch should close firmly. Keep the latch mechanism lightly oiled and clean.

Improper engagement of the coupler and ball can cause damage if the vehicles separate in transit: thus, caution must be exercised to insure a secure hook-up. Lower the coupler onto the ball with the coupler latch in the vertical position. Continue to lower the trailer tongue until the jack clears the ground, then flip the coupler latch to its locked (horizontal) position. At this point visually observe that the ball is fully engaged in the ball hitch. An even better check to make sure the two are fully engaged is to raise the tongue of the trailer again using the jack. Raise until the ball hitch connection starts to raise the rear of the tow vehicle. If the connection was not properly made, the ball and socket will separate as the tongue of the trailer is raised.

## SAFETY CHAINS

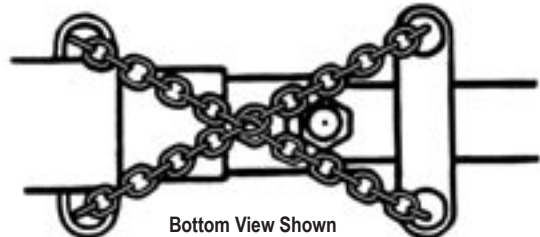
Listed in the chart below are the different class sizes of safety chains and the rated load each chain must be capable of withstanding.

TRAILER CLASS	TRAILER WEIGHT GVWR IN LBS.	MINIMUM BRAKING STRENGTH IN LBS.
I	to 2,000	2,000
II	2,000 to 3,500	3,500
III	3,500 to 5,000	5,000

**WARNING:** Failure to properly attach safety chains between the trailer and tow vehicle can result in a run away trailer.

**WARNING: Before trailering to avoid accidents...**

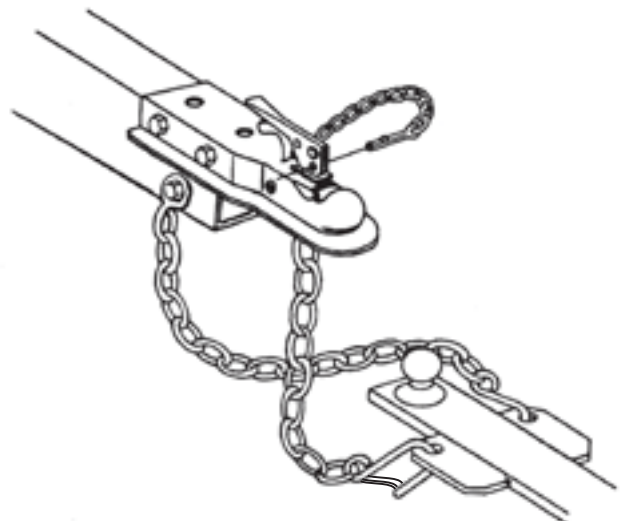
- Hitch only to ball size marked on coupling.
- Ball clamp must capture ball and lever or handwheel is fully clamped.
- Cross safety chains under coupling.
- Allow only enough slack for turns.



The safety chains on your trailer are an added insurance that it will not become detached from the tow vehicle. **ShoreLand'r®** provides all safety chains with an added clasp to keep them from becoming accidentally detached from the tow vehicle. Your trailer hitch on the tow vehicle should have two attaching holes or rings for attaching the safety chains, preferably one on each side of the ball hitch. Crisscross the chains under the tongue, the chain on the left side of the trailer tongue attached to the right side of the ball hitch, the chain on the right side of the trailer tongue attached to the left side of the ball hitch.

This prevents the trailer tongue from dropping to the road should the coupler or ball hitch fail. The chains should be rigged as tight as possible with just enough slack to allow tight turns to be made. This can be accomplished by twisting the chain hook in a clockwise or counterclockwise direction thus twisting the link spacing and making the chain shorter. Also by keeping your chains as short as possible you prevent them from dragging on the road and wearing the chain links.

If for any reason you find it necessary to replace a safety chain, use only original equipment.



## WIRING DIAGRAM & COLOR CODE

All trailer lights must be in proper working order before towing.

There are two basic wire harness plugs that **ShoreLand'r®** uses for plugging the trailer lighting into the tow vehicle. They are as follows:

A flat four plug that is used on either all trailers without brakes or else on trailers that are equipped with drum brakes. This plug is used in these applications because the only thing needing to be connected to the tow vehicle are lights. A solenoid lock out system is not required to operate drum brakes. The drum brakes have a mechanism in them that prevents the brake shoes from contacting the drums when the trailer is backed up.

The flat five plug is used on all trailers equipped with disc brakes. Disc brakes operate as well in reverse as they do going forward. This results in the trailer not being able to be backed up without the use of a solenoid to block the brake fluid from activating the brakes. The solenoid is activated by the extra blue wire in the flat five plug that is attached to the backup lights of the tow vehicle. When the tow vehicle is placed in reverse, the backup lights are activated which then activates the solenoid diverting the brake fluid generated by the actuator back into the actuator reservoir causing the brakes not to function in reverse.

### WIRING COLOR CODE

The wiring in your **ShoreLand'r®** is color coded as per wiring specifications. The following colored wires are connected to the proper lights to perform the required functions as listed:

#### Flat Four Wire Harness Plug

Yellow Wire..... Left Stop and Turn  
Green Wire..... Right Stop and Turn  
Brown Wire..... Taillights, Rear Side Marker Lights, Front  
..... and Rear Side Marker Lights, Rear Clear-  
..... ance Lights Including the Three-Light Rear  
..... Clearance Bar  
White Wire..... Ground Wire

#### Flat Five Wire Harness Plug (For Disc Brake Trailers Only)

Yellow Wire..... Left Stop and Turn  
Green Wire..... Right Stop and Turn  
Brown Wire..... Taillights, Rear Side Marker Lights, Front and  
..... Rear Side Marker Lights, Rear Clearance  
..... Lights Including the Three-Light Rear  
..... Clearance Bar  
White Wire..... Ground Wire  
Blue Wire..... Brake Solenoid that is mounted to the rear  
..... of the actuator to disengage the disc brakes  
..... on the trailer so it can be backed up.

## TIRE INFORMATION

### STEPS FOR DETERMINING CORRECT LOAD LIMIT

- Locate the statement "The weight of cargo should never exceed XXX kg or XXX lbs." on your vehicle's placard.

- This figure equals the available amount of cargo and luggage load capacity.
- Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity.

The trailer's placard refers to the Tire Information Placard attached adjacent to or near the trailer's VIN (Certification) label at the left front of the trailer.

### Steps for Determining Correct Load Limit – Trailer (For Trailers Over 10,000 lbs. GVWR):

1. Determine the empty weight of your trailer by weighing the trailer using a public scale or other means. This step does not have to be repeated.
2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer's VIN (Certification) label.
3. Subtract the empty weight of your trailer from the GVWR stated on the VIN label. That weight is the maximum available cargo capacity of the trailer, and may not be safely exceeded.

### Steps for Determining Correct Load Limit – Tow Vehicle (For Tow Vehicles 10,000 lbs. GVWR or Less):

1. Locate the statement, "The combined weight of occupants and cargo should never exceed xxx lbs.," on your vehicle's placard.
2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from xxx kilograms or xxx pounds.
4. The resulting figure equals the available amount of cargo and luggage capacity. For example, if the "xxx" amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage capacity is 650 lb. (1400 – 750 (5 x 150) = 650 lbs.)
5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage capacity calculated in Step # 4.
6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the tow vehicle's manual to determine how this weight transfer reduces the available cargo and luggage capacity of your vehicle.

## TIRES AND TIRE PRESSURES

**WARNING:** Keep tires properly inflated. Failure to maintain correct tire pressure may result in tire failure and loss of control resulting in serious injury or property damage.

## TIRE SAFETY

The most common cause of trailer tire failure is under-inflation. It is important, therefore, that you always maintain the specified air pressure, as indicated by the tire manufacturer on the tire's side walls. This information can also be found on the tire label or the manufacturer's certification label. Most tire manufacturer's have the air pressure molded on the tire side wall.

Maintaining proper tire pressure, observing all tire and trailer maximum carrying capacities, avoiding road hazards, and inspecting the tires for cuts, slashes and other irregularities are the most important things you can do to avoid tire failure. These practices, along with other care and maintenance, can improve handling, help protect you and others from avoidable breakdowns and accidents, improve fuel economy, and increase the life of your tires.

Make tire safety a regular part of your trailer maintenance routine. The time you spend is minimal compared to the amount of time, inconvenience, and potential safety hazards that can occur from a flat tire or failure.

## BASIC TIRE MAINTENANCE

Properly maintained tires improve the load-carrying capability of your trailer. You can help avoid flat tires and tire failures by maintaining proper tire pressure, observing tire and trailer capacity limits, avoiding road hazards, and inspecting your tires regularly.

## IDENTIFYING YOUR RECOMMENDED TIRE PRESSURE AND MAXIMUM LOAD CARRYING CAPACITY FOR YOUR TRAILER

Both the tire placard and the VIN label are permanently attached to the side frame of your trailer and have the required information printed on them. They also list the maximum load that can be placed on the trailer without exceeding the load limits of the tires or the trailer's other components. These labels indicate the manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- The maximum weight the trailer is designed to carry
- Gross vehicle weight rating of the trailer
- Gross axle weight rating of the trailer

## UNDERSTANDING TIRE PRESSURE AND LOAD LIMITS

Tire inflation pressure is the level of air in the tire that provides it with the load-carrying capacity and affects the overall performance of the trailer. The tire inflation pressure is a number that indicates the amount of air pressure that is inside the tire. It is measured in pounds per square inch (PSI). The tire must be inflated to the air pressure as designated on the labels. Also listed on the labels is the air pressure in kilopascals (kPa), which is a metric measurement.

Tire manufacturers determine the air pressure to maximize the amount of weight the tires can safely carry. The proper tire pressure for your trailer tires is referred to as the "recommended cold inflation pressure." It is difficult to obtain the recommended tire pressure if your tires are not cold when the reading is taken because the air will expand when it is warmed by towing down the road, thus increasing the air pressure inside. If air is added to a tire that is low the air pressure should never exceed the recommended pressure.

It is important to check your trailer's tire pressure at least once a

month for the following reasons:

- Most tires will naturally lose air over time.
- Tires can lose air suddenly if driven over an object that punctures or cuts the tire. Sometimes a sharp blow from a pothole or curb can knock the tire loose from the rim causing immediate deflation.
- Radial tires have an appearance of being under-inflated because of the design and a visual inspection will not always tell you whether the air pressure inside is below its proper operating range.

## MAINTAINING PROPER TIRE PRESSURE

1. Locate the recommended tire pressure on the trailer's tire information placard, certification label or else in the owner's manual.
2. Record the tire pressure of all tires.
3. If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get the correct pressure.
4. If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.
5. Add the missing pounds of air pressure to each tire that is under inflated.
6. Check all tires to make sure they have the same air pressure.

If you have been towing your trailer and think that a tire is under inflated, fill it to the recommended cold inflation pressure indicated on your trailer's tire label placard or the VIN label. You can also check the sidewall of the tire for a correct tire inflation pressure. Your tire will have a slightly lower air pressure because the tire is warm when you are inflating it, but it will be much better than to continue to tow it with the under inflation it may have had. Once the trailer has been parked long enough to allow the tires to cool down, recheck the tire pressure and add additional air to return the tire pressure to the recommended level.

## TIRE SIZE

To maintain the trailer's carrying capacity and safety, purchase only the same size tires as what were originally supplied on the trailer. The tires on the trailer are an ST rated tire. This means that they are a Special Trailer service tire that has more load carrying capacity than a comparable size tire automotive grade tire. The carrying capacity molded on the side wall of an automotive tire must be reduced by 10% if it is going to be used on a trailer.

Look at the tire information placard, the owner's manual, or the side wall of the tire you are replacing to find this information. If you have any questions about the correct size to choose, consult your **ShoreLandr's®** dealer or local tire dealer for assistance.

## TIRE TREAD

The tire tread provides a gripping action to the road to prevent it from sliding on the road surface when cornering and also to help in braking in the event that your trailer is equipped with brakes. Tires are not as safe when the tire tread is worn down to less than 1/16 inch tread. This is easily identified because most tires are manufactured with tread, wear indicators that let you know when the tires are worn to the point they should be replaced. These indicators are raised sections spaced intermittently in the bottom of the grooves.

When the tread has worn down to the point that they appear to be even with the outside of the tread it is time to replace the tire. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

## TIRE BALANCE AND WHEEL ALIGNMENT

To avoid vibration or shaking of the trailer when it is towed, the tires must be properly balanced. Unbalanced tires, when rotate, will cause vibration. The more they are out of balance, the more the vibration will be. This vibration can be eliminated by positioning weights on the wheel to counterbalance heavy spots on the wheel and tire assembly. Most any tire store or service station that deals with tires has the capability of balancing tires.

The wheels must be aligned so they are rotating in the same plane as what the trailer is being towed. They must be positioned so that they rotate in the same line as the trailer rather than at some slight angle either inward or outward from this line. If they are not aligned correctly, they will have a tendency to skid down the road causing the tread to wear off quickly and crooked. Correct alignment maximizes the life of your tires and are preset when the axles are welded during manufacturing. This alignment is correct and will remain correct when towed under most towing conditions. Hitting curbs and large pot holes with the trailer tires may distort the axle and cause the spindle position to be knocked out of alignment.

## TIRE REPAIR

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the side wall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

## TIRE FUNDAMENTALS

Federal law requires tire manufacturers to place standardized information on the side wall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

## INFORMATION ON PASSENGER VEHICLE TIRES

Please refer to the diagram below.

The "ST" indicates the tire is a special trailer tire.  
The "LT" indicates the tire is a light truck tire.



## NEXT NUMBER

This three-digit number gives the width in millimeters of the tire from side wall edge to side wall edge. In general, the larger the number, the wider the tire.

## NEXT NUMBER

This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short side wall for improved steering response and better overall handling on dry pavement.

## R

The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years. A "D" stands for bias ply construction.

## NEXT NUMBER

This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

## U.S. DOT TIRE IDENTIFICATION NUMBER

This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st. week of 1997. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

## TIRE PLY COMPOSITION AND MATERIALS USED

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

## MAXIMUM LOAD RATING

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

## MAXIMUM PERMISSIBLE INFLATION PRESSURE

The number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

## UTQGS (Uniform Tire Quality Grading System) INFORMATION

### TREADWEAR NUMBER

This number indicates the tire's wear rate. The higher the tread wear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

### TRACTION LETTER

This letter indicates a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

### TEMPERATURE LETTER

This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, under-inflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded



as "A", "B", or "C".

## ADDITIONAL INFORMATION ON LIGHT TRUCK TIRES

Please refer to diagram below.

Tires for light trucks have other markings besides those found on the side walls of passenger tires.

### LT

The "LT" indicates the tire is for light trucks.

### MAX. LOAD DUAL kg (lbs.) AT kPa (psi) COLD

This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

### MAX. LOAD SINGLE kg (psi) AT kPa (psi) COLD

This information indicates the maximum load and tire pressure when the tire is used as a single.

### LOAD RANGE

This information identifies the tire's load-carrying capabilities and its inflation limits.

### SNOW TIRES

In some heavy snow areas, local governments may require true snow tires, those with very deeply cut tread. These tires should only be used in pairs or placed on all four wheels. Make sure you purchase snow tires that are the same size and construction type as the other tires on your vehicle.

## RIMS

### WHEEL SIZES

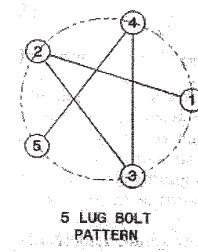
**ShoreLand'r®** uses various size tires on different model trailers to accommodate the load that is being placed on the trailer. This results in the use of different size and width of rims. **ShoreLand'r®** recommends that you use only genuine replacement parts for spare tires. However, should you need to purchase one elsewhere the following table lists information needed to purchase the right style rim to fit your trailer.

**All wheels used on ShoreLand'r® trailers have a zero offset meaning that the center mounting face of the wheel is in the center of the tire.**

Rim Size	Rim Width	Bolt Holes Number	Bolt Circle Diameter	Tire Size
8"	7"	5	4.5"	18.5X8.5
10"	6"	5	4.5"	20.5X8X10
12"	4"	5	4.5"	4.80-5.30X12
13"	5"	5	4.5"	ST155, 175, 185X13
14"	6"	5	4.5"	ST205, 215X14

## RECOMMENDED PROCEDURE FOR MOUNTING WHEELS

### TORQUING PROCEDURE FOR MOUNTING WHEELS



**WARNING:** Maintain proper torque on lug nuts. Failure to do so may result in serious injury or property damage.

The following procedures apply to both steel and aluminum wheels and must be adhered to very closely when mounting wheels to the hubs.

1. The contact surfaces of both the hubs and wheels must be free of paint, contamination and damage. Smooth, clean surfaces provide the most uniform clamping pressure and best retain torque.
2. Surfaces of contact on the axle (the flat hub surface and the threaded studs) must be free of excessive paint, oils, grease, contamination and physical damage.
3. When replacing a wheel assembly or repairing a flat tire, always remove all dirt, rust, grease and oil from the surfaces as well as the stud threads. Never lubricate the threads.
4. Position the wheel on the hub making sure the two match correctly. This is especially true if a spare wheel assembly or new replacement is being installed. Inspect to make sure full contact between the mounting surface (seat pads) of the wheel and the mounting surface of the hub, brake drum or rotor.
5. Start the wheel lug nuts on the studs.
6. Finger tighten the top nut, then rotate the wheel so that the number 2 nut (see diagram) is at the top and then finger tighten.
7. Repeat step 6, rotating the wheel and finger tightening nuts until all nuts are snug.
8. Use a torque wrench or an impact wrench with a torque stick as a tool initially to lightly secure the wheel, applying a criss-cross or star pattern as shown in the diagram.
9. The nuts should be tightened to 85-95 ft. lbs. of torque. A calibrated torque wrench is recommended for tightening the wheels so that all the nuts are tightened equally. **Re-torque nuts again after 50 miles of use and then check for tightness every time before towing.**
10. After the wheels with tires have been mounted, visually inspect to insure that the tires are not rubbing any other portion of the trailer or fender. There must be ample clearance for extreme road conditions and sharp turns.
11. In the event that the axles are rusted and you want to paint them, make a mask or shield (cover) to protect all fastener contact surfaces (mounting surfaces and studs) before painting axles, whether for improved cosmetics or for corrosion protection.

The following is a list of “don’ts” when mounting wheels on your trailer.

1. **DON’T** deviate from the component manufacturer’s recommendations regarding compatible components without a competent engineering review.
2. **DON’T** substitute any component for the components the suppliers have specified without a competent engineering review.
3. **DON’T** deviate from the component suppliers’ fastener torque specifications, where provided, without a competent engineering review.
4. **DON’T** use adhesive products to maintain fastener tension.
5. **DON’T** use lubricants or oils on threaded fasteners (studs or lugs) to make applying the torque easier unless assembly specifications require it.
6. **DON’T** apply any additional paint on fastener contact surfaces (mounting surfaces/hub faces or studs).

#### ALUMINUM WHEELS PURCHASED FROM ANOTHER SOURCE

Wheel torque may vary from one aluminum wheel manufacturer to another. In the event that you purchased aluminum wheels from a wheel supplier other than **ShoreLand’r®**, it is recommended that you use the torque specifications for that particular wheel.

Aluminum wheels purchased elsewhere must also have a carrying capacity equivalent to the load carrying capacity of an ST rated tire. ST rated tires have a greater carrying capacity than an automotive tire.

## BRAKES

**ShoreLand’r®** provides all trailers with a GVWR (Gross Vehicle Weight Rating) of 1,500 lbs. or more with the ability to have brakes installed on them. On the lower capacity trailers (1,500 - 2,400 lbs.) a special axle adaptable to brakes is part of the brake kit when brakes are ordered for a trailer this size. All trailers with a GVWR of 2720 lbs. or greater come with the brake flanges already welded on the axles.

Most of the trailer brakes are hydraulic surge brakes and are designed to operate automatically when the brakes on the tow vehicle are applied. When the tow vehicle slows down or stops, the forward momentum of the trailer pushing against the ball hitch applies pressure to a master cylinder in the trailer actuator. This pressure activates the brakes on the trailer similar to the brakes on the tow vehicle. This is a hydraulic surge brake system.

**ShoreLand’r®** reserves the right to have it’s brake vendors provide technical assistance.

Contact **ShoreLand’r®** for more technical and specific information on its different brake systems, bleeding procedures, and maintenance.

## TROUBLESHOOTING & MAINTENANCE

### LIGHTING

The **ShoreLand’r®** electrical system is virtually trouble-free, especially with the use of the automotive type wire harnesses. This eliminates shorts in the system due to bad or corroded connections. We suggest, however, that you use the following precautions for trouble-free trailering:

1. The taillights on your trailer are manufactured by either **Dry Launch** or **Peterson Manufacturing**. Carry a spare bulb for each application on your trailer. Determine the brand taillight and side marker lights you have by looking at the lens on the light. Their name will appear on it somewhere.
2. The replacement bulbs required are as follows:
  - For the **Peterson** taillight. The large taillight bulb is a #GE1157. The smaller bulb is #1895. The **Peterson Mfg.** side marker light (Rec. amber side light) has a GE193 bulb in it.
  - The large replacement bulb in the **Dry Launch** taillight is the same #GE1157 large bulb as used in the **Peterson**. The small bulb is the #GE194 bulb.
3. Once a year remove the light lens and spray or coat the metal components with either WD40 or CRC. A light coat of petroleum jelly also works quite well.
4. Make sure the electrical system on the tow vehicle is capable of powering the additional lights on the trailer. Check with your local automotive dealer for specifications and any options available that will increase the electrical capacity.
5. In order to insure a positive ground connection between the trailer and the tow vehicle, it is important that the white ground wires are secured properly to both the trailer and the towing vehicle. A poor ground connection will cause the lights to not function properly.

### PAINT AND ITS CARE

**ShoreLand’r®** offers their utility trailers in a black powder coated paint finish. It is a very durable finish and should remain very eye appealing for years. However, it still requires some maintenance and care as does your tow vehicle. Touch up paint is available in either a bottle with a paint stick or else a spray can. All nicks and scratches should be touched up before rusting sets in and starts to deteriorate the finish.

Your trailer may be exposed to salt conditions while towing it down the road. We recommend that you take the time to wash your trailer with soap and water, then rinse thoroughly to remove any residue that may have accumulated on the finish each time you tow on icy roads or salted road conditions. It should also be washed and rinsed before storing your trailer at the end of the season.

**CAUTION:** Make sure the loading ramps are in their ship positions and securely attached before towing. Failing to do so may cause an unwanted disconnect or the potential loss of the ramps while in transport. This may cause a potential accident involving other vehicles.

### REPACKING BEARINGS

**WARNING:** Keep wheel bearings lubricated. Failure to properly lubricate may cause bearing failure and possible wheel loss resulting in serious injury or property damage.

### IMPORTANT:

1. **ShoreLand’r®** uses an over-based Calcium Sulfonate grease that is very compatible with other greases. We would recommend that you use an over-based Calcium

Sulfonate grease if possible. It is available under Part No. 2500038 and is packaged in 14 oz. tubes. You can purchase this grease from any **ShoreLand'r®** dealer or else contact **ShoreLand'r®** direct. (1-800-859-3028)

2. Pack the bearings by forcing the grease into all the small cavities in the bearings. Fill the cavity in the hub with grease.
3. Fill the dust cap half full with grease when greasing the hubs.
4. Make sure the grease seals are in good, usable condition and do not show signs of them allowing grease to seep around the spindle. Most likely the seals will receive damage when removed and should be replaced with new seals.
5. Keep the bearings and grease free of any dirt or foreign matter.
6. The wheel bearings should be packed anytime during the year should you plan on storing the trailer for a period of time.
7. Be sure the bearings are adjusted properly according to the bearings adjustments mentioned under Bearing adjustment. Too tight of bearing adjustment will cause the bearings to heat up faster than one that is properly adjusted.

## Grease Seal and Bearing Protectors

If you decide to add bearing protectors to an older model trailer or one that is not equipped with bearing protectors, we suggest you install the Spindle Seal Kit available through your dealers. It offers stainless steel sleeves and spring loaded seals for your axle. This will prevent rust from chewing up the seals allowing grease to leak out.

## RECOMMENDED LUBRICANT

**Over-based calcium sulfonate grease** is installed at the factory because it is a very compatible grease that will blend well with most other greases. We recommend that you continue to add **grease** to the hubs when grease is needed. **ShoreLand'r®** has this grease available in a 14 oz. tube to fit a standard size grease gun. The part number is 2500038 and can be obtained from any authorized **ShoreLand'r®** dealer. However, any good marine grade water resistant grease that is compatible to **over-based calcium sulfonate** is recommended.

## BEARING REPACKING

Check the grease in your hubs once a year. In most instances, if a good quality lubricant is used and the lubricant levels are maintained, it may not be necessary to repack the bearing. However, should the grease appear to be contaminated or broken down, remove all of the old grease from the bearings and hubs and completely repack. Removing the rear bearing will most likely cause damage to the rear seal. A new one should be installed when reassembling.

## HUBS, BEARINGS, RACES, SEALS AND SPINDLE SLEEVES CHART

**ShoreLand'r®** uses the following sizes of hubs on all of its model trailers. Measurements listed are both spindle size and hub size.

Hub Size	Bearing, Race & Seal Size	Manufacturer's #
1-1/16" - 1-1/16" 5 1/2" flange	Inner & Outer Brg. 1-1/16" Inner & Outer Race 1-1/16" Dust Seal (1.250 I.D. - 1.979 O.D.)	Timken L-44649 Timken L-44610  TCM12192TB
1-3/8" - 1- 1/16" Hubs, Drums & Rotors	Inner Bearing 1-3/8" Inner Race 1-3/8" Outer Bearing 1-1/16" Outer Race 1-1/16" Dust Seal (1.750 I.D. - 2.565 O.D.)	Timken L-68149 Timken L-68111 Timken L-44649 Timken L-44610  TCM174243TB

## GREASE SEALS

Inspect the grease seals periodically. A visual inspection is sufficient and is done quite easily on a trailer without brakes. It is normal to see a small oil film around the seal area. This should not hurt anything. However, if the leakage becomes excessive it is time to replace the seal before too much grease escapes causing bearing failure. It will also cause the brakes to grab on a brake equipped trailer. Replacement of the seal requires removing the complete hub assembly from the spindle. Trailers equipped with disc brakes will have to have the brake calipers removed so the rotors can be removed from the spindle.

On axles with brake drums you must remove the complete brake drum assembly to inspect the seals. It is **very important** that you check the seals on brake axles periodically to make sure they are not leaking. Leaking seals allows the grease to get on the brake linings thus causing grabby brakes. Eventually the brake linings will become saturated with grease and will have to be replaced.

## BEARING ADJUSTMENT

The wheel bearings have been adjusted at the factory. To maximize bearing life, however, we suggest that you check the bearing adjustment after the first 50 miles of use, then every time the bearings are repacked. Contact an authorized **ShoreLand'r®** dealer for service.

Bearing adjustment can be checked by jacking up one side of the trailer. Grip the edge of the wheel and see if you can rock it or move it. If you have movement remove the dust cap or bearing protector, and the cotter key. While rotating the wheel, tighten the spindle nut to a recommended 20 inch-pounds of torque if your trailer has 1-1/16" - 1-1/16" bearings or 30 inch-pounds of torque if your trailer has 1-3/8" - 1-1/16" bearings. **Do not over tighten. NOTE:** The spindles have cross holes drilled at 90 degree intervals for the retaining cotter key. Look for the hole in the spindle through the slots in the spindle nut. If you can see any part of the hole through the

slot in the nut, turn the nut counterclockwise until the next slot in the nut lines up with the cross hole. Insert the cotter key.

If you cannot see any portion of the hole in the spindle through the slots in the nut, turn the nut counterclockwise until the hole lines up with the first slot available in the nut. Insert the cotter key.

This adjustment will give you from one-thousandths to ten-thousandths end play which is in tolerance for proper adjustment. Check wheel again for movement. If no movement, spin wheel. Check the wheel again for movement. If no movement, spin the wheel again. The wheel should turn easily and have no end play (lateral movement). Re-insert the cotter key, then bend the ends to keep it from coming out. Place the dust cover or bearing protector into position. Tap lightly on the edges to start the cover into the hub. Then using a screwdriver on alternating sides as you work around the dust cover, tap the screwdriver with a hammer until the dust cover is completely into the hub and the flange on the dust cover is it tight against the hub face. If you are installing a bearing protector, once it is started into the hub place a wood board over the bearing protector and then tap evenly and lightly until the flange is completely against the face of the hub.

Repeat the above process on the other wheels.

## BRAKE SERVICE & MAINTENANCE OF BRAKING SYSTEMS

**ShoreLand'r®** uses only a hydraulic surge brake system with a hydraulic surge actuator on their utility trailers. This system has an actuator on the tongue of the trailer that attaches to the tow vehicle. It is designed that when the brakes are applied on the tow vehicle the trailer will push into the tow vehicle. As this load is applied to the actuator a master cylinder inside the actuator generates pressure on the brake fluid that is then supplied to the wheel cylinders of the drum brakes or into the calipers on disc brake systems. As this brake fluid is supplied the pressure is applied to the brake shoes or pads causing the brakes to apply on the trailer.

## BACKING UP A TRAILER WITH DISC BRAKES

### OPERATING TRAILERS WITH DISC BRAKES

Many **ShoreLand'r®** trailers come with disc brakes as standard equipment. This system is designed to brake in both forward and reverse, therefore the brakes must be disengaged to back up.

**IMPORTANT:** To properly operate this system the tow vehicle **MUST** be equipped with a matching 5-prong trunk harness to power the solenoid. Otherwise, a lockout key must be used (this key is provided with your actuator).

### TRAILER'S 5-PRONG WIRE HARNESS REQUIREMENTS

Required 5-prong trunk harness on tow vehicle.

### HOW THE SOLENOID LOCKOUT WORKS

The disc brake actuator has a lockout solenoid that is activated by the tow vehicle's back-up lights. When the vehicle is put in reverse, the solenoid redirects the brake fluid back into the actuator reservoir rather than applying pressure to the brake calipers. Then, when the tow vehicle is put into park, neutral or a forward gear the solenoid returns to its original position allowing the brakes to function normally during travel.

### ALTERNATIVES TO THE 5-PRONG HARNESS

As stated above, the best way to operate the solenoid is with a 5-prong wire harness on the tow vehicle that matches the wire harness plug of the trailer. This allows the solenoid to be plugged in at the same time the trailer lights are connected for towing. If a 5-prong harness is not available there are a number of short-term fixes that will allow you to use the trailer.

### UFP ACTUATOR LOCKOUT KEY

**UFP** actuators are shipped with a lockout key attached to the side of the actuator on a short cable. The round end of the key is simply inserted in the slot on the side of the actuator. When the key is in the slot, the trailer can be backed without the brakes engaging. When the trailer is moved forward, the key will fall out of the slot. The key fits very loosely to insure that it will not remain in the slot after backing. Leaving the lockout key in the slot would disable the brake system during normal use, which could result in a serious accident.

### ADDING A 5TH WIRE & PLUG

A separate wire and plug can be wired into the tow vehicle back-up lights that can be plugged into the fifth wire of the trailer harness. The solenoid will work as described above, however this new wire will have to be plugged into the trailer harness separately.

### USING A 4-PRONG PLUG

If the tow vehicle is equipped with a 4-prong plug, the trailer can still be moved using the solenoid to lock out the brakes. Though not ideal, this is acceptable for backing trailers in either a storage yard or a shop environment where the tow vehicle is not the normal vehicle that will be used with the trailer. Before backing, simply unplug the trailer's 5-prong harness from the tow vehicle's 4-prong trunk harness. Turn the harness 90 degrees and plug the blue wire on the 5-prong harness into the brown wire on the 4-prong harness. To activate the solenoid, turn on the tow vehicle's lights. The power for operating the running lights will operate the solenoid, disengaging the brakes so the trailer can be backed up.

### UFP ACTUATOR WITH LOCKOUT KEY

Turn plug to connect the blue wire to the brown wire.

## BRAKE SERVICE AND MAINTENANCE

**WARNING:** Trailer brakes must be maintained in good working conditions. Loss of adequate braking could result in serious injury or property damage.

The braking systems are covered in much greater detail in the **Brake Information Packet** that pertains to brake systems and brake components only. Contact your local dealer or contact **Shoreland'r®** directly to receive a copy of this information.

**This trailer is equipped to meet applicable U.S. Federal safety standards. Check local and state requirements regarding brakes and any additional equipment that may be required. Any modifications or additions including load equalizing hitches, without written factory consent: usage in an abnormal manner including overloading voids all manufacturers warranties and liability.**

## REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the **National Traffic Safety Administration (NHTSA)** in addition to notifying us.



If **NHTSA** receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, **NHTSA** cannot become involved in individual problems between you, your dealer, or us.

To contact **NHTSA**, you may either call the **Auto Safety Hotline** toll-free at 1-800-424-9393 (or 366-0123 in Washington D.C. area) or write to: **NHTSA**, U.S. Department of Transportation, Washington D.C. 20590. You can also obtain other information about motor vehicle safety from the hotline.

To contact us: call toll-free 1-800-859-3028, or write to: **Midwest Industries, Inc.**, Customer Service Department, Box 235, Ida Grove, Iowa 51445.

## WARRANTY

Warranty information is within your Owner's Packet. Contact your dealer for service or information on warranty. If warranty, or other information was not included with your trailer, you may request this information at [www.shorelandr.com](http://www.shorelandr.com) or call Midwest Industries (home of **ShoreLand'r®**) directly at 800.859.3028.

## GLOSSARY OF TIRE TERMINOLOGY

### ACCESSORY WEIGHT

The combined weight (in excess of those standard items which may be replaced) of automatic transmission, power, steering, power brakes, power windows, power seats, radio and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

### BEAD

The part of the tire that is made of steel wires, wrapped or reinforced by ply cords and that is shaped to fit the rim.

### BEAD SEPARATION

This is the breakdown of the bond between components in the bead.

### BIAS PLY TIRE

A pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

### CARCASS

The tire structure, except tread and side wall rubber which, when inflated, bears the load.

### CHUNKING

The breaking away of pieces of the tread or side wall.

### COLD INFLATION PRESSURE

The pressure in the tire before you tow.

### CORD

The strands forming the plies in the tire.

### CORD SEPARATION

The parting of cords from adjacent rubber compounds.

### CRACKING

Any parting within the tread, side wall, or inner liner of the tire extending to cord material.

### CT

A pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on the underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire.

### CURB WEIGHT

The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and if so equipped, air conditioning and additional weight optional engine.

### EXTRA LOAD

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

### GROOVE

The space between two adjacent tread ribs.

### INNERLINER

The layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

**INNERLINER SEPARATION**

The parting of the inner liner from cord material in the carcass.

**INTENDED OUTBOARD SIDEWALL**

The side wall that contains a white-wall, bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same molding on the other side wall of the tire or the outward facing side wall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

**LIGHT TRUCK (LT) TIRE**

A tire designed by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

**LOAD RATING**

The maximum load that a tire is rated to carry for a given inflation pressure.

**MAXIMUM LOAD RATING**

The load rating for a tire at the maximum permissible inflation pressure for that tire.

**MAXIMUM PERMISSIBLE INFLATION PRESSURE**

The maximum cold inflation pressure to which a tire may be inflated.

**MAXIMUM LOADED VEHICLE WEIGHT**

The sum of curb weight, accessory weight, vehicle weight, and production options weight.

**MEASURING RIM**

The rim on which a tire is fitted for physical dimension requirements.

**NON-PNEUMATIC RIM**

A mechanical device which, when a non-pneumatic tire assembly incorporates a wheel, supports the tire, and attaches, either integrally or separably, to the wheel center member and upon which the tire is attached.

**NON-PNEUMATIC SPARE TIRE ASSEMBLY**

A non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

**NON-PNEUMATIC TIRE**

A mechanical device which transmits, either directly or through a wheel or wheel center member, the vertical load and tractive forces from the roadway to the vehicle, generates the tractive forces that provide the directional control of the vehicle and does not rely on the containment of any gas or fluid for providing those functions.

**NON-PNEUMATIC TIRE ASSEMBLY**

A non-pneumatic tire, alone or in combination with a wheel or wheel center member, which can be mounted on a vehicle.

**NORMAL OCCUPANT WEIGHT**

This means 68 kilograms (150 lbs.) times the number of occupants.

**OCCUPANT DISTRIBUTION**

The distribution of occupants in a vehicle as specified.

**OPEN SPLICE**

Any parting at any junction of tread, side wall, or inner liner that extends to cord material.

**OUTER DIAMETER**

Then overall diameter of an inflated new tire.

**OVERALL WIDTH**

The linear distance between the exteriors of the side walls of an inflated tire, including elevations due to labeling, decorations, or protective band or ribs.

**PLY**

A layer of rubber-coated parallel cords.

**PLY SEPARATION**

A parting of rubber compound between adjacent plies.

**PNEUMATIC TIRE**

A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load.

**PRODUCTION OPTIONS WEIGHT**

The combined weight of those installed regular production options weighing over 2.3 kilograms (5 lbs.) in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

**RADIAL PLY TIRE**

A pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the centerline of the tread.

**RECOMMENDED INFLATION PRESSURE**

This is the inflation pressure provided by the vehicle manufacturer on the Tire Information Label and the Certification/ VIN tag.

**REINFORCED TIRE**

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

**RIM**

A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

**RIM DIAMETER**

This means the nominal diameter of the bead seat.

**RIM SIZE DESIGNATION**

This means the rim diameter and width.

**RIM TYPE DESIGNATION**

This means the industry of manufacturer's designation for a rim by style or code.

**RIM WIDTH**

This means the nominal distance between rim flanges.

**SECTION WIDTH**

The linear distance between the exteriors of the side walls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

**SIDEWALL**

That portion of a tire between the tread and bead.

## **SIDEWALL SEPARATION**

The parting of the rubber compound from the cord material in the side wall.

## **TEST RIM**

The rim on which a tire is fitted for testing, and may be any rim listed as appropriate for use with that tire.

## **TREAD**

That portion of a tire that comes into contact with the road.

## **TREAD RIB**

A tread section running circumferentially around a tire.

## **TREAD SEPARATION**

Pulling away of the tread from the tire carcass.

## **TREAD INDICATORS (TWI)**

The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

## **VEHICLE CAPACITY WEIGHT**

The rated cargo and luggage load plus 68 kilograms (150 lbs.) times the vehicles designated seating capacity.

## **VEHICLE MAXIMUM LOAD ON THE TIRE**

The load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

## **VEHICLE NORMAL LOAD ON THE TIRE**

The load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight divided by two.

## **WEATHER SIDE**

The surface area of the rim not covered by the inflated tire.

## **WHEEL CENTER MEMBER**

In the case of a non-pneumatic tire assembly incorporating a wheel, a mechanical device which attaches, either integrally or separable, to the non-pneumatic rim and provides the connection between the non-pneumatic rim and the vehicle; in the case of a non-pneumatic tire assembly not incorporating a wheel, a mechanical device which attaches, either integrally or separately, to the non-pneumatic tire and provides the connection between tire and the vehicle.

## **WHEEL-HOLDING FIXTURE**

The fixture used to hold the wheel and tire assembly securely during testing.

## **CHANGING TIRE**

It is desirable that you carry a jack that will work on your trailer in the event that you have a flat tire. A small board or block can also be very beneficial in the event you are jacking on soft dirt or hot asphalt. The jack, depending on the style, may be placed under the side frame in back of the wheel or also under the axle. When placing the jack under the axle, the following precautions should be taken:

- The jack must be placed under the axle as close to the spring as possible.
- If your trailer is equipped with a channel axle, a 2 x 4 x 8" wood block must be placed between the jack and the axle positioned so that the wood block contacts both vertical legs of the axle channel.

- Any other jacking procedures may cause damage to the axle and void warranty.

## **EXCESSIVE TIRE WEAR**

Each axle that **ShoreLand'r®** manufactures has been preset when welded for proper caster and camber. If you are experiencing excessive tire wear, it is possible that your axle has been knocked out of alignment by hitting a curb or large pothole. The caster and camber can be checked out and may be corrected by a mechanic with wheel aligning equipment.